

In the Claims:

Claims 1 – 12 (Cancelled)

Claim 13 (New)

An apparatus for reducing orbital motion during Czochralski crystal growth in a crystal pulling machine comprising:

a bottom chamber;

a crucible within the bottom chamber, the crucible rotatable around an axial axis and containing a molten material;

a top chamber above the bottom chamber;

a winding drum mounted on the top chamber, the winding drum rotatable around the axial axis;

a flexible member wound around the winding drum and extending downward along the axial axis into the pull chambers; the flexible member supporting and pulling a crystal from the molten material;

a controller; and

at least one active damping module, the active damping module comprising a wire interceptor, a spring, and a gas-driven control loop dampener, and wherein the control loop dampener is adjusted by the controller.

Claim 14 (New)

An apparatus for reducing orbital motion during Czochralski crystal growth in a crystal pulling machine comprising:

a bottom chamber;

a crucible within the bottom chamber, the crucible rotatable around an axial axis and containing a molten material;

a top chamber above the bottom chamber;

a winding drum mounted on the top chamber, the winding drum rotatable around the axial axis;

a flexible member wound around the winding drum and extending downward along the axial axis into the pull chambers; the flexible member supporting and pulling a crystal from the molten material;

a controller; and

at least one active damping module, the active damping module comprising a wire interceptor, a spring, and a hydraulic control loop dampener, and wherein the control loop dampener is adjusted by the controller.

Claim 15 (New)

An apparatus for reducing orbital motion during Czochralski crystal growth in a crystal pulling machine, comprising:

at least one active damping module for intercepting a pull wire, the pull wire having pendular motion; and

a controller, wherein the controller calculates the natural frequency of vibration for the growing crystal and adjusts the at least one active damping module to provide critical dampening, the active damping module comprising a wire interceptor, a spring, and a gas-driven control loop dampener.

Claim 16 (New)

An apparatus for reducing orbital motion during Czochralski crystal growth in a crystal pulling machine, comprising:

at least one active damping module for intercepting a pull wire, the pull wire having pendular motion; and

a controller, wherein the controller calculates the natural frequency of vibration for the growing crystal and adjusts the at least one active damping module to provide critical dampening, the active damping module comprising a wire interceptor, a spring, and a hydraulic control loop dampener.